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A REVIEW OF ECONOMIC FACTORS AFFECTING THE DEMAND FOR COTTON

Gordon A. King

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Mimeographed Report No. 213 January 1959

FOREWORD

In 1957, the Giannini Foundation was requested by a committee representing producers, service agencies, and others in the California cotton industry to appraise the supply and demand situation for cotton. Research findings will be presented in three reports: The first, "Economics of California Cotton Production," by T. R. Hedges deals with the production aspects in the State; the second, "Major Developments in Foreign Cotton Consumption, Production and Trade," by H. R. Woltman describes changing conditions abroad that vitally affect domestic prices and utilization; and the present report outlines the major economic factors that affect the demand for cotton.

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SUMMARY

The major economic factors affecting the demand for cotton are appraised both for the domestic and foreign market. Another component of the demand for cotton, namely,noncommercial stocks, is closely related to the particular price support legislation in effect. The government is prepared to extend loans to farmers complying with certain restrictions as to quality, acreage, etc. Thus, the loan rate has tended to establish a floor to cotton prices. Stocks have accumulated during various periods since the 1930's. High levels of cotton stocks are the concrete evidence of maladjustment in the industry, as are the complex disposal programs introduced by the government to reduce these stock holdings. More fundamental, however, are trends within the domestic and foreign markets for the cotton.

The domestic demand for all fibers tends to be inelastic with respect to price; that is, a proportionate decrease in prices of all fibers tends to be associated with less than proportionate increase in mill consumption of all fibers. Probably the market for cotton is appraised most realistically by considering specific end uses rather than aggregate consumption trends. Price is an important factor affecting the substitution between cotton and rayon, for example, in certain end uses. Competition between cotton and the noncellulosic fibers, such as nylon, does not depend on price to the same extent but rather on the unique characteristics of these fibers. Added competition for cotton and other fibers comes from nonfibers such as paper in bags and plastics in electrical insulation. Important factors shifting the demand for fibers include the level of population and its age composition and levels of income.

The level of exports of United States upland cotton depends on various demand and supply conditions abroad and on the U. S. price policy and export financing arrangements. As to foreign demand, income levels and population

growth have increased the total fiber consumption abroad. However, production of cotton in foreign countries and the sharp increases in production of synthetic fibers have decreased the importance of U. S. cotton in world fiber consumption. Dollar shortages also have restricted the free exports of cotton, and financing arrangements included in the Mutual Security Act, the Public Law 480, and Export-Import Bank loans have had a large part in the post-World War II trade. The sale for export of CCC stocks at prices 6-7 cents below the domestic market since January 1956 has tended to increase the levels of exports of cotton.

In addition to these changes in the domestic and foreign demand structure, the technology of cotton production has changed rapidly in recent years. Thus, there are important adjustments that the industry must make if cotton is to retain domestic and foreign markets without excessive government assistance. A recent U. S. Department of Agriculture report to Congress outlines several alternative price support programs. Even with markedly lower support levels, this report indicates the necessity for acreage controls. One alternative outlined in the U. S. Department of Agriculture report considers the introduction of an efficiency modifier that would tend to reflect changes in production technology that have occurred in recent years. It would appear that if cotton is to retain its present share of the market, the industry must improve the quality of the product and have a realistic price policy for both domestic and foreign markets.

A REVIEW OF ECONOMIC FACTORS AFFECTING THE DEMAND FOR COTTON

by

Gordon A. King[1]

INTRODUCTION

Technological developments have affected both the production of cotton and the domestic and export demands for cotton. Important factors that have affected production include (a) innovations in harvesting equipment, improved use of insecticides, pesticides, fertilizer, and the introduction of improved varieties of cotton; and (b) the location of production. A shift has taken place to the high-yielding irrigated areas of the West and a reduction in the relative importance of acreage and production in the Southeast has occurred.

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[1] Lecturer in Agricultural Economics and Assistant Agricultural Economist in the Experiment Station and on the Giannini Foundation, University of California, Davis, California.

The domestic demand for cotton has been adversely affected by technological developments in the production and utilization of synthetic fibers and other substitute goods. These items compete strongly for fiber end uses formerly held by cotton. Price competition undoubtedly is an important factor influencing fiber purchases by mills, especially between such fibers as cotton and rayon; however, the competition between cotton and nylon and other noncellulosics may depend to a greater extent on the particular characteristics of the fibers.1/

The foreign market for United States cotton has been affected by the production of synthetic fibers abroad, the increased production of cotton abroad, and a world market characterized by governmental regulation. United States cotton exports--as for other major export crops--in the post-World War II period have been supported by foreign aid programs and financing arrangements for dollar-short countries. Since January 1956, the Commodity Credit Corporation has offered stocks of cotton for export at prices comparable to those for foreign growths.

Recent changes in the support program for cotton include the change from the "old" to "new" parity formula as of January 1956 for calculation of support prices, and the introduction of "flexible" support levels for the 1956 crop (82.5 percent of parity), the 1957 crop (78 percent of parity), and the 1958 crop (81 percent of parity). The export sale of CCC2/ stocks at competitive prices during the 1956-57 and 1957-58 seasons has introduced one type of two-price support system. Payments also have been made for exports of cotton products to compensate the domestic industry for cheaper cotton sold to foreign mills under the cotton export program.

1/ See: Horne, M. K., Jr., Frank A. McCord, and George Townsend, Price and the Future of United States Cotton, (Memphis: 1955) (National Cotton Council of America), 58p.

2/ CCC as used in this article refers to the Commodity Credit Corporation.

Acreage allotments for the 1954 and subsequent crop years have sharply reduced the national acreage of upland cotton. For the past three seasons additional land has been taken out of production and placed in the Soil Bank Acreage Reserve Program (approximately one million acres in 1956, three million acres in 1957 and five million acres in 1958). Acreage under cultivation, July 1, 1958, equaled about 12.4 million acres, as compared with 25 million acres in 1953, and 28 million acres in 1951, the post-World War II peak year during the Korean War period. The magnitude of production adjustments by cotton farmers is highlighted in these acreage data. The adjustments, by regions, depend on the alternative farm production possibilities as well as off-farm employment opportunities which vary among regions. Thus, absolute cost advantages may not be the most important aspect of regional supply response, and attention must be centered on the relative profitability of alternative production possibilities. Without a comprehensive analysis of interregional competition among cotton producing areas it is not possible to indicate the effects of lower price supports, or other price programs, on a particular region. The present acreage allotment program tends to retain acreage in the present areas, although the relative production by area is influenced by the potential increase in yield per acre. As to the national acreage level, acreage allotments will be influenced by the level of demand for domestic and export uses.

The demand structure for cotton consists of (1) domestic mill demand; (2) export demand; (3) commercial stock demand; and (4) government stock demand. Under present support operations, the government stands prepared to purchase cotton at specified support levels, and thus tends to set a lower limit for prices. The quantities moving into domestic, foreign, and commercial stocks are influenced by complex faces that determine the demand for U. S. cotton. This report reviews the major economic factors that affect the demand for

U. S. cotton. Quantification of these relationships is not attempted in this research. Rather, important trends and developments are outlined to stress the impact of synthetic fibers on cotton consumption. Also, the effect of price support legislation on domestic and foreign markets is indicated.

SUPPLY AND DISTRIBUTION OF U. S. COTTON

Production of cotton for the 1957 season was estimated at 10.9 million bales (500 pounds gross weight containing about 480 net pounds of lint). This is about 2.4 million bales less than in 1956; 3.8 million bales less than in 1955; and 5.6 million bales less than the peak production of 16.5 million bales for the 1953 season. Yields per acre have shown a sharp upward trend in recent years, due to better over-all cultural practices and technological advances and shifts in acreage to the high-yielding irrigated areas of the West.

Yields in California, Arizona, and New Mexico are markedly higher than in the other three major areas. Yields in these areas for the 1957 crop are as follows: West, 974 pounds per harvested acre; Southwest, 290 pounds; Delta, 392 pounds; Southeast, 334 pounds; and the United States average, 388 pounds. The California lint yield for the 1957 crop was 1,035 pounds per harvested acre, second only to the Arizona yield of 1,037 pounds.

Acreage in California, Arizona and New Mexico reached a peak in 1952, with 2.4 million acres in cultivation on July 1. Acreage in cultivation on July 1, 1957 was 1.3 million acres, or a decrease of 1.1 million acres. Acreage allotments were voted for the 1954 and subsequent crops. A further reduction of acreage in cultivation resulted from the acreage reserve program for the 1956, 1957 and 1958 crops. For 1956, the national acreage allotment for upland cotton was 17.4 million bales, and 1.1 million acres were placed

under the reserve program. For 1957, 3.0 million acres of the acreage allotment of 17.6 million acres were placed under the acreage reserve program and in 1958, 4.9 million acres of an acreage allotment of 17.6 million acres. In the Southeast, 28 percent of the 1957 acreage allotments was placed under the program, whereas in the West the level was 10 percent (similar data for other areas are: Southwest, 16 percent, and the Delta, 14 percent).

Net Imports of cotton during 1950-1954 average 148 thousand bales of which 98 thousand bales were extra-long staple cotton, imported mainly from Egypt and Peru. Imports of shorter staple lengths mainly originate in India, Pakistan and Mexico.

Total Supplies of cotton have varied considerably in the post-World War II period due to changes in production and in stocks. The Commodity Credit Corporation piled up stocks from the 1952 and subsequent crops. However, the CCC export program during the 1956 season aided in reducing stocks. Total stocks as of August 1, 1957 were 11.3 million bales, or greater than estimated production of 10.9 million running bales. The carry-over on August 1, 1958 is estimated at 8.7 million bales.

Mill Consumption of cotton in the United States averaged 8.8 million bales in 1953-1956 as compared with 6.9 million bales in 1935-1939. High levels of mill consumption for military and civilian use were attained during the periods of World War II and the Korean War. Mill consumption in recent years has not reflected the upward trend in population and consumer income. It dropped to an estimated 8.0 million bales in 1957-58, partly due to the recession. An important factor affecting the demand for cotton includes the increased importance of synthetic fibers. Appraisal of factors affecting mill consumption of cotton is given in a following section of this report.

Exports averaged 4.2 million bales during the seasons beginning August 1, 1947-1956. This period was characterized by various foreign aid programs and financing arrangements for countries lacking in dollar exchange. This level of exports is lower than prior to World War II, when exports averaged 5.3 million bales in 1935-1939; 7.2 million bales in 1930-1934; and 8.2 million bales in 1925-1929.

Recent exports account for a lower proportion of total utilization than in the 1920's but approximately equal the 1935-1939 average. For the 1953-1956 period, ending stocks accounted for 47 percent, mill consumption 36 percent, and exports 17 percent; in 1935-1939, these proportions were 42, 33, and 25 percent, respectively; and in 1925-1929, ending stocks were 18 percent, mill consumption 37 percent, and exports 45 percent of total utilization.

The proportion of the export market held by the United States has declined markedly from the high level of 59 percent in 1925-1929 to 34 percent in 1950-1954. Considering changes from the 1935-1939 period, the proportionate loss of markets is much less (42 percent of world exports in 1935-1939). There have been important shifts in the regional pattern of world exports, increases now coming from Mexico, Turkey, Syria, and some of the countries of Africa and Asia. Important changes also have occurred as to the importing countries, as will be discussed more fully.

Year ending stocks have accounted for a higher proportion of total utilization in most seasons since the initiation of support operations in 1933. The level of stocks held at mill location has remained relatively more stable than that of total stocks. (See Appendix Table 2, page II). These stocks reflect, in the main, holdings of working stocks for mill operations, although difference between "expected" and "realized" mill demand accounts for certain fluctuations. Holdings of "free" stocks in other locations reflect a demand

for storage due to uncertainty as to the size of subsequent crops, and other reasons. Holdings of the CCC reflect the residual supply. Since 1949, CCC holdings have been larger than free stocks, with the notable exceptions of stocks on August 1, 1951, 1952, and 1953. On August 1, 1951, CCC-held stocks equaled only 79,000 bales due to the strong demand conditions associated with the Korean War. However, by August 1, 1956, the level had increased to 9.9 million bales. On August 1, 1957, this level had decreased to 5.2 million bales, due largely to the export price for CCC stocks. On August 1, 1958, CCC stocks, excluding cotton, sold for export in 1958-59 totaled 2.8 million bales.

COMPARISON OF CALIFORNIA AND OTHER U. S. COTTON

Direct comparison between California and other cotton areas can be made on the basis of published data on the average cotton grade and staple length. The grade characteristics include: (1) color; (2) leaf and other trash; and (3) preparation, or the degree of smoothness or roughness with which the lint is ginned and the relative neppiness or nappiness of the ginned lint.[1] In addition to staple length and grade, there are other elements of cotton quality for which no standards are established. These factors are referred to as "character," and relate to fineness, maturity, tensile strength, length, uniformity, spirality, pliability, and cohesiveness of the fibers. Fiber laboratories have been used to an increasing extent by marketing and research groups to quantify some of the desired characteristics of cotton fiber for specified uses.

One of the unique features of California cotton production is the "One Variety Program" first initiated in the 1920's. Currently, almost all cotton

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[1] For a complete description of quality factors of cotton, see: The Classification of Cotton, Cotton Division, Agricultural Marketing Service (Washington, Rev. 1957) U. S. Department of Agriculture Miscellaneous Publication No. 310.

produced in the state is the variety California A4-42 Acala. Legislation requires all San Joaquin Valley cotton to be of one variety. Uniformity as to the staple length and quality control are the important features of this program. This cotton is regarded highly for its strength of fibers. Research continues in an effort to obtain cotton somewhat less subject to neps than the present variety.

The staple length of California cotton averaged $\frac{34.1}{32}$ inches for the 1953-1957 seasons. Principal other states producing similar length cotton for this period are: Mississippi, with an average staple length of $\frac{33.7}{32}$ inches; Arkansas, $\frac{33.3}{32}$ inches; and Arizona, $\frac{33.5}{32}$ inches. The United States average staple length was $\frac{32.5}{32}$ inches. The U. S. average has increased from an average of $\frac{30.1}{32}$ inches for the 1928-1932 seasons, to $\frac{30.7}{32}$ inches in 1933-1937, $\frac{31.8}{32}$ inches in 1938-1942, and to $\frac{32.0}{32}$ inches in 1943-1947. Detailed statistics for the California cotton crops of 1954-1956 indicate 86 percent of the cotton was 1-1/16 inches or longer.1/

As to grade of cotton for total United States crops of 1953-1955, 33 percent averaged white, middling, and 29 percent white, strict low middling. During these seasons, a higher proportion of cotton graded white middling in Arizona (42 percent), Arkansas (41 percent), and Mississippi (39 percent), than was true for the California crop (24 percent). The modal grade classification for California cotton was white, strict low middling, with an average of 35 percent of total production in this grade. Comparable percentages for the other three states are: Arizona, 28 percent; Arkansas, 28 percent; and Mississippi, 29 percent.

1/ See: Agricultural Marketing Service, Cotton Quality Statistics, United States, 1955-56, (Washington: 1957) U. S. Department of Agriculture Statistical Bulletin No. 202, 60p., and United States Cotton Quality Report for Ginnings 1957 Crop, vol. XXX1, No. 9 (Memphis: 1958) 8p.

Quantity of California cotton placed under loan, expressed as a percent of production, was less than the national average in 8 of the 10 crops from 1947-1956. For 1948 and 1954, California producers placed a slightly higher percentage of production under loan; however, quantities redeemed were large in 1954, and the percentage of production in loans outstanding (loans minus redemptions) was much lower than the national average. With the exception of 1948, the percentage of production in loans outstanding for California producers has been among the lowest for any state in the country, (see Appendix Table 3, page IV). Thus, cotton has moved into domestic and normal export channels to a greater extent than has been true for some other areas, especially the Southwest.

It is not possible to isolate the demand for California cotton as such, since substitution is possible between fibers of equal length, grade, and other characteristics. Also, various types of cotton may be blended to attain the desired characteristics for specific end uses. However, a preliminary comparison between prices of California growths and Memphis territory growths at southeastern mill points seems to indicate that quotations within a given grade and staple length classification generally did not differ by more than 1/2 cent per pound. For 1956, California cotton prices were generally higher and in 1954 and 1955 were higher in the strict low middling grades but were lower in the middling and strict middling grades for specified staple lengths.

THE DOMESTIC DEMAND FOR COTTON

The major components of domestic utilization considered here include factors affecting the long-run demand for mill consumption of cotton. The year-to-year changes in commercial stocks and government-owned stocks are less relevant factors in the context of this report. The level of mill consumption of cotton fibers depends upon such factors as population levels and composition, personal

income, the prices of cotton and competing fibers, and certain changes in preference both from the viewpoint of the ultimate consumer and the textile mills. In any given year, mill consumption may reflect differences between actual and expected levels of demand at the retail level. Thus some fluctuations may be due to factors not particularly relevant for long-run considerations--the major aim of this report.

It is important to consider factors affecting (a) the level of demand for all fibers, and (b) the share of the market held by cotton. Prices of the various fibers are an important factor in the competition among individual fibers, but are of less significance in the total demand for all fibers. The value of the raw materials (fibers) forms a relatively small percentage of the total value of the final good purchased by the consumer. It is fairly well established that the demand for all fibers tends to be inelastic with respect to price changes.1/

Mill Consumption of All Fibers

During the calendar years 1950-1954, mill consumption of all fibers averaged 6.5 billion pounds, or roughly double the 1920-1924 level of 3.3 billion pounds. The population in the United States increased by over 40 percent during the period. In terms of consumption per person, the increase has been from 29.7 to 41.5 pounds, or an increase of 40 percent. Average mill consumption per person during 1925-1929 equaled 32.2 pounds; decreased to 25.8 pounds during 1930-1934; increased to 31.5 pounds in 1935-1939; and to a high of 46.0 pounds in 1940-1944 when military requirements were at a peak.

1/ See: Lowenstein, Frank and Martin S. Simon, "Analyses of Factors that Affect Mill Consumption of Cotton," Agricultural Economics Research (Washington: 1954) Agricultural Marketing Service, vol. VI, No. 4, pp. 101-110.

An analysis by the U. S. Department of Agriculture[1] of domestic mill consumption of cotton per capita would indicate that for the period between World Wars I and II, a 10 percent increase in real disposable income would be associated with roughly a 7 percent increase in cotton mill consumption holding constant such factors as trends and level of synthetic fiber production and cotton prices. Consumption of total fibers per person has not responded to higher levels of income in the past few years, and similarly for cotton.

Per capita mill consumption of all fibers is given in Table 1 in terms of actual pounds (column 1) and cotton equivalent (column 2). Since synthetic fibers have assumed an increasingly important proportion of fiber consumption, conversion factors have been developed by the U. S. Department of Agriculture to present more comparable data. The trend in fiber consumption per person, expressed in cotton equivalent, may be compared with the index of real disposable income per person in the United States (see Table 1). Between the 1935-1939 and 1947-1949 periods, per capita real income increased by roughly 45 percent and per capita fiber consumption increased by 37 percent, giving a crude estimate of income elasticity of 0.8. Taking 1947-1949 as a base period, the 1954-1956 average income per person increased by roughly 15 percent whereas average fiber consumption per person decreased slightly from 42.9 to 42.5 pounds per person. Partial explanation of the downward trend may be due to shifts in the age-sex composition of the population. This is pointed out as follows[2]: "Expenditure data indicate a definite relationship between expenditure and age.

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[1] U. S. Congress, Senate, Various Methods of Supporting the Price of Cotton (Washington: Government Printing Office, 1957) (85th Congress, 1st session, Senate Doc. 12), p. 31.

[2] Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-173, p. 40.

TABLE 1

Consumption of All Textile Fibers[a] and Real Disposable Income, Per Capita: Fibers in Actual and Cotton Equivalent Pounds, and Index of Real Disposable Income in 1947-1949 Dollars. Average 1935-1939 and 1947-1949, Annual 1949-1956

Period	Fiber consumption actual pounds	Fiber consumption cotton equivalent pounds	Index of real disposable income 1947-1949 dollars 1947-1949 = 100
Average:			
1935-1939	31.5	31.4	69
1947-1949	41.5	42.9	100
1949	36.4	38.3	100
1950	45.0	47.4	107
1951	44.3	47.1	107
1952	40.9	43.8	108
1953	40.5	43.6	111
1954	37.0	40.3	110
1955	40.3	44.7	116
1956	38.7	42.6	119

[a] Include cotton, wool, man-made fiber, flax and silk.

Source: Lowenstein, Frank and Martin S. Simon, "Textile Fiber Consumption in Cotton Equivalent Pounds," The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-173 p. 41, and Department of Commerce income data.

Also, males and females spend different amounts on apparel. If the population estimates are adjusted for these differences, the result being an estimate of the number of clothing expenditure units in the U. S., we find that these units increased by about 11 percent from 1947 to 1956, while population increased by 16 percent. In other words, the number of people in the low spending age and sex groups increased more rapidly than the number in the high spending groups.

"This trend may reverse itself in about the next 10 years or so. According to population projections by the Bureau of the Census, the high spending group may be increasing more rapidly than the low spending groups by 1965 to 1970. If this should happen, the downtrend in apparel expenditures per person could be reversed."

TABLE 2

Cotton, Man-made, and Other Fibers in Actual and Cotton Equivalent Pounds: Percentage Distribution, United States Averages 1935-1939 and 1947-1949, Annual 1949 to 1956

	Cotton		Man-made fibers						Other fibers a/	
			rayon and acetate		noncellulosic fibers		total			
Period	actual	cotton equivalent	actual	cotton equivalent	actual	cotton equivalent	actual	cotton equivalent	actual	cotton equivalent
	percent									
Average:										
1935-1939	80.7	81.1	8.2	12.0	---	---	8.2	12.0	11.1	6.9
1947-1949	71.1	68.7	17.2	23.7	1.2	2.0	18.3	25.6	10.5	5.7
1949	70.6	67.1	18.3	25.1	1.7	2.8	20.0	27.9	9.4	5.0
1950	68.5	65.1	19.8	26.4	2.1	3.3	21.9	29.8	9.6	5.1
1951	71.1	67.0	18.6	24.5	2.9	4.6	21.5	29.1	7.4	3.9
1952	69.6	64.9	18.9	24.9	4.0	6.2	22.9	31.1	7.5	4.0
1953	69.0	64.0	18.9	24.9	4.8	7.0	23.2	31.9	7.8	4.1
1954	68.8	63.1	19.2	24.6	5.5	8.9	24.7	33.5	6.5	3.4
1955	65.7	59.4	21.3	27.0	6.5	10.3	27.8	37.3	6.5	3.3
1956	67.1	60.9	18.4	23.3	7.4	12.0	25.8	35.5	7.1	3.6

a/ Primarily wool but also some flax and silk.

Source: *Ibid.*, p. 49.

The Proportionate Share of the Market

With the introduction of synthetic fibers, the proportionate share of the total fiber market taken by cotton fibers has declined. Also there have been important changes in the relative importance of various end uses of cotton. As to the share of market, this is summarized clearly in Table 2. The non-cellulosic fibers, such as nylon and orlon,have taken an increasing proportion of the total fiber market in the post-World War II years. The proportion of the market taken by rayon and acetate increased sharply between 1935-1939 and 1947-1949 but the upward trend has tended to level off in recent years. The share of the market taken by other fibers, mainly wool, has decreased over time.

Cotton competes with rayon on a price basis, to a greater extent, than with the noncellulosic fibers. Comparisons are more meaningful if allowance is made for waste in the two fibers, as shown in Table 3. In contrast to the pre-war period, rayon prices in 1956 were 7½ cents per pound (usable fiber basis) lower than middling 15/16 inch cotton. For August of the 1957 season, this differential was reduced to 6-1/3 cents per pound. Lower cotton support prices and market prices were accompanied by reductions in rayon prices. The possible gains in cotton consumption due to a price reduction depend directly on the price policy of rayon producers, since gains would be due mainly to a change in the share of the market held by the respective fibers. The direct price elasticity of demand for cotton, and for all fibers, is inelastic.

The relative importance of various end uses of cotton has changed markedly even since 1948. McCord1/ indicates that major losses between 1948 and 1956 were in industrial uses, such as tire cord and in bags, retail price goods,

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1/ McCord, Frank A., "The Market Research Program of the Raw Cotton Industry," Textile Market Research Conference, 1957, (Memphis: 1957) (National Cotton Council of America), pp. 42-46.

TABLE 3

Rayon and Cotton Prices: Equivalent Prices Per Pound of Usable Fiber, United States, 1930-1934, 1935-1939, 1947-1949, and 1950 to 1956

Year beginning August 1	Rayon staple fiber a/	Middling 15/16 inch b/
Average:	cents	cents
1930-1934	46.83	11.68
1935-1939	28.56	13.37
1947-1949	37.17	39.61
1950	40.95	51.18
1951	42.00	47.50
1952	38.86	41.72
1953	35.70	40.56
1954	35.70	41.34
1955	34.13	41.95
1956	32.29	39.79

a/ Wholesale price of Viscose, 1-1/2 denier. Assumes net waste multiplier of 1.05.

b/ Price of Memphis Territory growths, landed group B mill points and assuming net waste multiplier of 1.15.

Source: Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-173, p. 74.

electrical insulation, and cordage and twine. The development of high-tenacity rayon and nylon has led to the virtual displacement of cotton in tire cord. Other competitive losses have been to various nontextiles such as paper for use in bags, towels, and napkins and losses to plastics for electrical insulation.

Gains in apparel and household items tended to more than offset losses in industrial uses. Important goods showing increased consumption between 1948 and 1956 include shirts, sheets, drapery and upholstery fabrics, dresses and carpets and rugs.

In summary, the domestic market for cotton is appraised most realistically when consideration is given to various end uses rather than aggregate consumption trends. Price is an important factor affecting the substitution between cotton and rayon in certain end uses and the amount of blending of these fibers. Competition between cotton and the noncellulosic fibers does not depend to such an extent on price, but rather on particular properties that are unique to these fibers. Population levels and real income per capita are the important factors shifting the aggregate demand for cotton and for all fibers. As noted, nonfibers such as paper in bags and plastics in electrical insulation have become important factors affecting fiber consumption. The market for California cotton depends on these same factors. It is felt that improvements are possible in processing methods. Also, a reduced susceptibility to neppiness would probably increase the present demand based on the highly desired characteristics of uniform staple length and fiber strength.

EXPORT DEMAND FOR U. S. COTTON

The quantity of cotton exported from the United States depends on various demand factors in importing countries, supply response in producing areas, government policies here and abroad with respect to price, export subsidies,

TABLE 5

Cotton: Foreign Supply and Disappearance, 1938 and 1945-1956, and U. S. Department of Agriculture Estimates for 1960 Under Two Assumptions as to Domestic and Export Prices

Year beginning August 1	Foreign stocks	Foreign cotton production	United States cotton exports	Total supply	Foreign cotton consumption		Cotton exported to United States or destroyed	Foreign ending stocks	Foreign production of man-made fibers b/	
					actual	per capita a/			pounds	cotton equivalent
	million bales					pounds	million bales		million pounds	million bales
1938-39	13.7	17.9	3.3	34.9	23.7	5.4	0.3	10.9	1,641	4.4
1945-46	17.9	12.1	3.6	33.6	15.3	—	.5	17.8	614	1.6
1946-47	17.8	13.0	3.3	34.1	18.0	—	.4	15.9	334	2.3
1947-48	15.9	13.4	2.0	31.3	19.3	—	.4	11.6	1,005	2.8
1948-49	11.6	14.3	4.7	30.6	20.4	4.3	.5	9.7	1,321	3.6
1949-50	9.7	15.5	5.8	31.0	20.6	4.5	.4	10.0	1,705	4.6
1950-51	10.0	18.9	4.1	33.0	23.1	4.3	.4	9.5	2,266	6.1
1951-52	9.5	21.3	5.5	36.3	23.9	4.7	.2	12.2	2,745	7.5
1952-53	12.2	21.7	3.0	36.9	25.1	4.7	.3	11.5	2,476	6.7
1953-54	11.5	22.9	3.8	38.2	27.3	5.0	.4	10.5	3,038	8.3
1954-55	10.5	25.0	3.4	38.9	27.1	5.3	.4	11.4	3,566	9.7
1955-56 c/	11.4	25.0	2.2	38.6	28.6	5.4	.4	9.6	3,981	10.8
1956-57 c/	9.6	25.0	7.6	42.2					4,381	11.8
USDA estimates for 1960 with d/ US prices at:										
90 percent of parity		28.3	2.0		30.3					16.6 e/
75 percent of parity		27.1	4.2		31.3					15.1 e/

(continued on next page.)

Table 5 Continued.

a/ Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-171, p. 24.

b/ Ibid., p. 22.

c/ Preliminary.

d/ U. S. Congress, Senate, Various Methods of Supporting the Price of Cotton (Washington: Government Printing Office, 1957) (85th Congress, 1st Session, Senate Document 12), p. 38.

e/ Adjusted to agree with revised method of computing cotton equivalent of man-made fibers.

Source: (except where noted) International Cotton Advisory Committee, World Cotton Statistics (Washington: 1956) Quarterly Statistical Bulletin, vol. 9, No. 3, 145p., and Agricultural Marketing Service, The Cotton Situation (Washington: 1957) various issues, U. S. Department of Agriculture.

barter arrangements, import quotas, and availability of foreign exchange. As in the domestic market, synthetic fibers have exerted a tremendous influence on the structure of world fiber consumption, trade and production. Significant developments in the world fiber economy are reviewed as background for appraisal of the prospective export market for United States cotton.

Major Markets

Japan, United Kingdom, Germany, France, and Italy accounted for 74 percent of United States exports during the years beginning August, 1935-1939, and for 63 percent in 1952-1954. Addition of exports to Canada and "other" European countries would include 86 percent of U. S. exports in 1952-1954. The level of United States exports averaged 3.4 million bales in 1952-1954 as compared with 5.3 million bales in 1935-1939.

In 1938, about 33 percent of the total raw cotton supplies of the major importing countries were exported as manufactured goods. This was reduced to about 25 percent of raw cotton supplies exported as manufactured goods in 1952-1954. Important factors influencing this change include the tendency towards greater regional self-sufficiency in fibers and the impact of synthetic fiber production.

Foreign Supply and Distribution

The broad trends in the foreign supply and distribution of cotton are summarized in Table 5. The year beginning August 1, 1938, is taken as the pre-World War II base since data are more readily available and reliable for this period. However, it is noted that United States exports were unusually low in this year, averaging 3.3 million bales as compared with 5.9 million bales in the preceding 5-year period. The marked increase in cotton consumption

abroad has been achieved from foreign production rather than from imports from the United States. Consumption per capita regained the 1938 level only in the 1955 season, as shown in Table 5.

Foreign production of man-made fibers in 1955 was 2.4 times the 1938 level. If expressed in terms of cotton equivalent, foreign production in 1955 was 10.8 million bales, or over 40 percent as large as foreign cotton production. This upward trend will undoubtedly continue in the future. The rate of increase will depend to some extent on the level of cotton prices.

Determination of the impact of the price policy for United States cotton or foreign cotton and synthetic production is, of course, one of the most important and complex problems faced by California and other United States cotton producers. Estimates of foreign and domestic cotton and synthetic fiber production and consumption were made by the U. S. Department of Agriculture. The estimates for 1960 under the restrictive assumptions set forth will be discussed in more detail; however, these data are indicated in Table 5 for purposes of comparison with past trends. To indicate briefly the difficulty of estimates of this nature, assumptions must be introduced as to: (1) the elasticity of supply in major cotton producing countries; (2) the elasticity of supply of synthetic fiber production; (3) the level of demand in importing countries, that is, population levels, income, etc.; (4) the cross-elasticity of demand for cotton and synthetics. Assumptions are indicated for two levels of United States prices, namely, 90 percent of parity and 75 percent of parity. Price support levels and market prices for recent years are next presented as a basis for review of cotton exports in the post-World War II period and under the 1956 cotton export program.

CCC Support Prices

During the past four seasons, the price of cotton in designated markets has averaged slightly higher than the CCC loan rate (see Table 6). In 1950-51, the price for 15/16 inch middlings was 13 cents above the loan rate due to the demand stimulated by the Korean War. Price ceilings were imposed, and foreign prices were generally above domestic levels for comparable grades. With several important exceptions, the domestic price has approximated the support level for the years since 1933 when the program was initiated.

Recent changes in the CCC loan rate include the change from the "old" to "new" parity formula, as of January 1956, and the introduction of the "flexible" support level for the 1956 and 1957 crops.

For exports, the 1956 export sales program for CCC stocks of cotton introduced an important change in price policy. The 1956-57 loan rate for middling 15/16 inch cotton was 31.59 cents per pound. As noted in the Cotton Situation[1/] most of the export cotton sold at a price slightly over 25 cents a pound, basis middling 15/16 inch at average locations. A rough calculation (see Footnote b, Table 6) indicates that this price is about 65 percent of parity as contrasted to the domestic level of 82.5 percent.

Prices of United States and Comparable Foreign Growths

The share of the world export market held by the United States depends on price as it affects the supply response from other cotton producing areas, and the production of synthetic fibers. However, other important considerations include barter arrangements, purchase from nondollar areas in years for which total imports of all goods may be limited by importing nations, and other policies designed to protect the industry of the importing nation.

[1/] Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-167, p. 14.

TABLE 6

Cotton Prices: CCC Loan Rate and Average Market Price, 1949-1957

Year beginning August 1	Parity July a/	Support level - percent of parity	CCC loan rate at average location for middlings: 7/8"	15/16"	1"	Average price in designated markets for middlings: 15/16"	1"
	cents	percent	cents				
1949	30.13	90	27.23	29.43		31.83	32.65
1950	31.00	90	27.90	29.45		42.58	43.23
1951	33.85	90	30.46	31.71		39.42	39.94
1952	34.35	90	30.91	31.96		34.52	35.33
1953	34.22	90	30.80	32.70		33.55	34.36
1954	35.09	90	31.58	33.23		33.88	35.02
1955	35.22	90	31.70	33.50	34.55	34.38	35.46
1956	35.56	82.5	29.34	31.59b/	32.74	32.35b/	33.53
1957	36.93	78	28.81	31.16	32.31	---	---

a/ July immediately preceding the August crop year.

b/ During the 1956-57 marketing year, CCC sold cotton abroad at a price of a little more than 25 cents a pound, basis middling 15/16 inch at average location. This is about 6.6 cents lower than the support price and the market price. If we calculate a "parity price" for 15/16 inch middling of 38.29 cents (derived by dividing the CCC loan rate of 31.59 cents by the support level of 82.5 percent) CCC export price would be roughly 65 percent of this calculated parity level.

Source: Agricultural Marketing Service, Statistics on Cotton and Related Data, 1920-1956 (Washington: Government Printing Office, 1957) U. S. Department of Agriculture, Statistical Bulletin No. 99, 254p., and various issues, The Cotton Situation.

Comparisons between foreign cotton prices and comparable United States growths are indicated in Table 7 for the seasons 1949-1956. The prices for United States and Mexican cotton are net weight prices to give direct comparability with foreign quotations. Prices are expressed in U. S. cents per pound, and thus may not reflect the advantage of purchase from nondollar sources, for example. The United States and Mexican prices are averages for designated spot markets divided by 0.96 to convert to net weight prices.

Prices for foreign cotton tended to be lower than comparable United States growths, especially in 1955-56. In 1956-57, this relationship was reversed for CCC sales prices. A comparison between United States 1-1/32 inch strict low middling price at New Orleans and the Mexican Metamoros middling 1-1/32 inch, delivered at Brownsville, Texas, is indicative of this change. In the 1955 season, the United States price averaged 4.66 cents above the Mexican price, whereas during the 1956 season the CCC price for export cotton was 1.99 cents below the Mexican price. However, in July and August 1957, the United States CCC price was about 0.45 cents higher.

As noted in the Cotton Situation[1/] "The competitive price relationship between United States and foreign cotton started with the sale of CCC stocks for export at competitive world prices. At that time CCC sales prices for export were set so as to be competitive with prices for comparable quality of foreign growth. Since then prices for both United States and foreign grown cotton have increased, but prices for foreign grown cotton have increased more than prices for United States cotton. The reverse was true, however, before the CCC export program became effective for all qualities of cotton. In the 1955-56 season, United States spot market prices were higher than the foreign spot market prices for comparable foreign qualities for five of the six growths."

[1/] Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-172, p. 11.

TABLE 7

Cotton Prices: Selected Foreign Markets, Including Export Taxes, and Comparable United States Growths, Averages for 10 or 14 Spot Markets 1949-1956, Expressed in U. S. Cents Per Pound a/

Year beginning August 1	United States SLM 15/16"	Bombay India Broach Vijay	United States SLM 1"	Karachi Pakistan 289 Sind Fine	United States M 1-1/16"	Ismir Turkey Acala II	United States M 1-1/32" b/	Metomoros Mexico M 1-1/32"	United States M 1-1/8"	Alexandria Egypt Ashmouni good
	U. S. cents per pound									
1949	30.23	23.76	30.72	33.65	34.60	---	---	---	34.86	49.09 c/
1950	41.95	39.00	42.51	62.39	45.60	---	---	---	45.70	74.28
1951	39.07	40.26	39.68	52.65	42.18	---	---	---	42.07	59.60 c/
1952	34.55	32.08	35.42	34.46	37.50	38.32	---	---	38.00	37.15 c/
1953	33.44	33.45 c/	34.31	34.70	36.54	40.87	36.06	35.69	37.05	37.44
1954	33.74	30.47	34.79	35.78	37.68	46.27	37.21	35.60	38.37	41.17
1955	33.28	26.74	34.41	30.40	38.25	47.74	37.55	32.89	38.26	41.93
1956	30.50	27.67	31.89	28.82	36.48	34.80 d/	34.34	30.86	36.54	47.44
1956 CCC price	23.51		27.93		29.47		28.87		31.11	

a/ United States and Mexican prices are net weight prices obtained by dividing spot price by 0.96.

b/ New Orleans.

c/ Average for less than 12 months.

d/ Beginning November 1956, spot price less 35 percent export subsidy paid by Turkish government.

Source: Agricultural Marketing Service, The Cotton Situation (Washington: 1957) various issues, U. S. Department of Agriculture, CS-172 and previous issues; Statistics on Cotton and Related Data, 1920-1956 (Washington: Government Printing Office, 1957), U. S. Department of Agriculture, Statistical Bulletin No. 99, 254p., Cotton Division, Cotton Price Statistics (Memphis: 1957) U. S. Department of Agriculture, vol. 38, No. 13, 33p; and International Advisory Committee, World Cotton Statistics, (Washington: 1956) Quarterly Statistical Bulletin, vol. 9, No. 3, 145p.

Further, "The data used for comparison purposes are spot market prices for foreign growths and spot market prices of CCC selling prices for United States cotton. Cotton landed in the country of consumption will sell for somewhat different prices than the spot market prices. But the relationship shown . . . (Table 7) . . . indicate in general the type of relationship between prices for United States and foreign grown cotton which prevails or has prevailed in the consuming countries."

The foreign prices include cotton export taxes in some cases. For example, the 1954-55 export tax for the Egyptian quotation was the equivalent of 5.88 United States cents per pound; for the Pakistani quotation, 6.93 cents; and for Mexican middling 15/16 inch, about 4.30 cents. It is indicated that the price for Acala II in Turkey for the 1956 season is the spot price less a 35 percent subsidy paid by their government. If these governments find it desirable to maintain export levels with lower world prices, it is possible to lower the export taxes without affecting the supply price for their domestic producers. The United States support price has been an important factor in determining the general level of world prices and in turn the supply response in various foreign countries.

United States Government Programs to Finance Cotton Exports

Exports of cotton have been financed to a considerable extent by government aid in the post-World War II period. These programs (including the Mutual Security Act, Public Law 480, and Export-Import Bank Loans) financed 43 percent of total exports in 1954-55, 75 percent for 1955-56, and 49 percent for 1956-57. Rafler has analyzed the cost of cotton export programs for the 30 months for July 1955 to December 1957.1/ The estimated cost under barter arrangements is

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1/ Rafler, Doris D., "Government Financing of Cotton Exports," The Cotton Situation, (Washington: 1958) U. S. Department of Agriculture CS-177, pp. 20-23.

725 million dollars; for Public Law 480, 115 million dollars; and for grants mainly under the Mutual Security Act, 150 million dollars. Thus, it is indicated that the minimum cost of the cotton export programs during that period totaled about 990 million dollars. The value of cotton exports during that period of 30 months equaled about 1.9 billion dollars.

The volume of exports for the period since January 1956 has been due, in part, to the sale of export of CCC stocks at prices 6-7 cents below the domestic price. The cotton sold under the government programs mentioned in the above paragraph also had the benefit of this lower price.

U. S. Department of Agriculture Report on Methods of Supporting Cotton Price

This report was submitted in January, 1957 and appears as Senate Document 12.1/ As to levels of exports, it was assumed that there would be no export programs other than those in connection with a specific price program.

The export levels estimated for 1960 were derived as follows:2/ "Estimates of exports were made by deducting estimated foreign cotton production from estimated foreign cotton consumption. This assumes the United States continues to fill the residual share of the foreign market. The estimates of foreign consumption and production are, in large part, based upon the judgment of Department of Agriculture specialists.

"It was assumed that the consumption of cotton per capita abroad would increase less than 0.05 of a pound per person per year from 1955 with cotton prices at 90 percent of parity. In the light of recent experience this assumption is very conservative. Cotton consumption could increase at a more rapid rate.

1/ United States Congress, Senate, Various Methods of Supporting the Price of Cotton (Washington: Government Printing Office, 1957) (85th Congress, 1st Session, Senate Doc. 12), pp. 27-38.

2/ Ibid., p. 37.

"Man-made fiber consumption was assumed to increase about a tenth of a pound per person. With cotton prices at 75 percent of parity, it was assumed that man-made fiber consumption would increase at a slightly lower rate than it would with cotton prices at 90 percent of parity. The decline in the rate of increase of man-made fiber consumption was then added to the rate of increase for cotton consumption. The assumptions concerning changes in relative consumption of cotton and man-made fibers are believed to be conservative. Actual changes in the rates of increase in cotton and man-made fiber consumption when prices are varied more than 15 percent could be larger than those used in the report.

"Foreign cotton production in 1960 was estimated by Department of Agriculture specialists who regularly analyze the cotton situation abroad. The estimates show about a 14 percent and 9 percent increase from 1955 under 90 and 75 percent of parity prices in the United States, respectively.

"In addition, changes in stocks of cotton abroad have not been considered in export projections. Research has shown that before World War II declines in world prices of cotton caused stocks to increase, and declines in consumption of cotton abroad caused foreign stocks to increase. During the 1956-57 season, some increase in our exports will undoubtedly be caused by an increase in cotton stocks abroad from the very low level of August 1, 1956.

"The estimates of export response . . . (see Table 5) . . . are rough approximations. A difference of a tenth of a pound per person in estimated consumption abroad in 1960, other factors being the same, would mean a difference of more than 0.5 million bales in the estimate of United States exports. Relatively small variations in the estimates for one or more of the other variables . . . (such as foreign production, as indicated in Table 5) . . . also would mean significant variation in United States exports."

The report explored the possible variation in exports under several alternative price levels for exports and also for domestic levels. Three of these basic price levels for exports are indicated below, with market prices relating to 15/16 inch middling cotton at the 1955 level of parity.

Percent of parity	Market prices based on 1955 parity	Estimated exports in 1960 a/
percent	cents	million bales
90	33.50	2.0
75	27.92	4.2
65	24.19	4.8

a/ Ibid., p. 31.

In 1956-57, exports totaled 7.6 million bales, of which 2.7 million bales were financed under one of three programs mentioned on page 24. In addition, 951 thousand bales were exported under barter operations. Approximately 3.8 million bales of cotton were exported under the CCC export program at prices approximating 65 percent of parity. The U. S. Department of Agriculture analysis of exports assumed nongovernment financing of exports other than that associated with a specific price support program.

The high level of exports of 1956-57 was influenced by the low level of stocks held abroad in anticipation of the change in price policy. However, this price policy resulted in considerable increase in export levels. Basically, sale of CCC stocks at prices lower than those for the domestic market is one of several two-price plans that could be introduced. The U. S. Department of Agriculture report to the Senate considers several alternative two-price plans, including: (1) sale of CCC stocks for exports; (2) cash export subsidy; (3) certificate plan and processing tax plan; and (4) an international cotton agreement. Also the report examines systems of price support other than two-price plans, such as: (1) ninety percent of parity; (2) flexible support price system; (3) 75 percent of parity; (4) cotton's own parity; and (5) cotton's own parity with efficiency modifier.

The last-mentioned plan would introduce an "efficiency modifier" to reflect changes in the efficiency of cotton production. Calculations indicate[1] that "the quantity of inputs per bale of cotton has decreased at an average rate of about 3 percent per year from 1945 to 1955. ... The application of the efficiency modifier (1945 = 100) to the old parity price of cotton and to cotton's own parity[2] would have reduced the parity price of each substantially during most of the years considered . . . (1945-1955) . . . For example, if in 1955 the efficiency modifier were multiplied by the old parity price and by cotton's own parity, respectively, resulting prices would be about 24.2 and 23.9 cents a pound. Without use of the efficiency modifier, cotton's own parity would have been about 34.6 cents in 1955. Old parity in 1955 was 35.1 cents per pound.

Limitations of available data complicate the applicability of the efficiency modifier or cotton's own parity, especially for years prior to 1945. Also, it is noted that choice of a base period drastically affects the resulting price level. Also, some method would be required for smoothing out year-to-year changes due to abnormal growing conditions, such as the use of a moving average. Further, "data to compute the efficiency modifier for the current crop would not be available for use in the support price calculation for that crop. The use of the preceding year's data might cause a support price to be calculated which would reflect more or less change in efficiency than actually occurred."

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[1] *Ibid.*, pp. 15-17.

[2] This would be a price support system based on the prices of items used in cotton production. Items included were labor, land, planting seed, insecticides, fertilizer, irrigation water, power and machinery, and ginning. Terms not included were management and general overhead.

"Use of the efficiency modifier would raise questions as to how gains in efficiency should be shared between cotton producers and consumers. Changes in the efficiency of cotton production vary among areas and farms. Application of an efficiency modifier that would be based on changes in average efficiency would have differential effects on net incomes of cotton producers. Many producers who can attain less than average gains in production efficiency would be adversely affected. It should be noted, however, that any reduction in the national support price which is based on averages or in free market prices would also raise severe problems for inefficient producers. This may mean that other programs would be needed to assist inefficient producers to make adjustments."

Since Senate Document 12 is available to the interested reader, the various support programs will not be spelled out in this report. The alternative considered for the above method of support is one for "cotton's own parity with 50 percent efficiency modifier." Exports under this plan are estimated at 4.3 million bales, or slightly higher than for the 75 percent of parity method. For all the methods, except for a support level well below 75 percent of parity, it is assumed that it would be necessary to have acreage control, which would vary depending on the method of support.

APPENDIX TABLE 1

Supply and Distribution of All Kinds of Cotton, United States, 1923 to Date

Year beginning August 1	Supply					Distribution			
	carry-over beginning of season	production a/	city crop	net imports (total less re-exports)	total b/	mill con-sump-tion	net exports	de-stroyed	total b/
	1,000 bales c/								
1923	2,325	10,128		272	12,725	5,681	5,647	20	11,348
1924	1,556	13,775		303	15,638	6,193	7,999	26	14,218
1925	1,610	16,009		314	17,933	6,456	8,045	50	14,551
1926	3,543	17,870		382	21,794	7,190	10,917	70	18,177
1927	3,762	12,710		321	16,793	6,834	7,529	20	14,383
1928	2,537	14,295		442	17,273	7,091	8,038	18	15,147
1929	2,312	14,539		368	17,219	6,106	6,675	25	12,806
1930	4,530	13,684		99	18,314	5,263	6,757	28	12,048
1931	6,370	16,693		107	23,169	4,866	8,707	62	13,635
1932	9,678	12,810		124	22,612	6,137	8,418	30	14,585
1933	8,165	12,593		137	20,894	5,700	7,531	40	13,271
1934	7,744	9,466		107	17,317	5,361	4,767	30	10,158
1935	7,208	10,367		155	17,730	6,351	5,971	35	12,357
1936	5,409	12,243		249	17,901	7,950	5,433	45	13,428
1937	4,499	18,267		158	22,924	5,748	5,595	65	11,408
1938	11,533	11,602		132	23,268	6,858	3,325	66	10,249
1939	13,033	11,376		159	24,568	7,784	6,163	75	14,022
1940	10,564	12,268		188	23,020	9,722	1,112	70	10,904
1941	12,166	10,542		252	22,959	11,170	1,125	50	12,345
1942	10,640	12,496		168	23,305	11,100	1,480	60	12,640
1943	10,657	11,069		129	21,856	9,943	1,138	50	11,131
1944	10,744	11,924		190	22,858	9,568	2,007	50	11,625
1945	11,164	8,853		343	20,359	9,163	3,613	60	12,836
1946	7,326	8,540	35	270	16,170	10,025	3,544	16	13,585
1947	2,530	11,623	26	234	14,412	9,354	1,968	20	11,342
1948	3,080	14,619	30	163	17,892	7,795	4,748	35	12,578
1949	5,287	15,894	27	245	21,453	8,851	5,769	37	14,657
1950	6,846	9,848	28	188	16,910	10,509 d/	4,108	27	14,653
1951	2,278	15,028	40	72	17,418	9,196 d/	5,515	35	14,746
1952	2,789	15,124	42	193	18,149	9,461 d/	3,048	50	12,559
1953	5,605	16,359	43	142	22,149	8,576	3,760	75	12,411
1954	9,728	13,544	46	146	23,464	8,841	3,445	60	12,346
1955	11,205	14,633	47	137	26,022	9,210 d/	2,229	—	11,424
1956 e/	14,529	12,978	50	84	27,642	8,617	7,593	—	16,210
1957 e/	11,400								

(continued on next page.)

Appendix Table 1 continued.

a/ Includes ginnings of new crop prior to August 1 end of season.

b/ Totals were made before data were rounded to thousands.

c/ Running bales except "Net imports" which is in bales of 500 pounds each.

d/ Adjusted to a cotton marketing year basis, August 1-July 31.

e/ Estimates from Agricultural Marketing Service, The Cotton Situation (Washington: 1957) U. S. Department of Agriculture CS-172, 30p.

Source: Agricultural Marketing Service, Statistics on Cotton and Related Data, 1920-1956 (Washington: Government Printing Office, 1957) U. S. Department of Agriculture Statistical Bulletin No. 99, 254p.

APPENDIX TABLE 2

Stocks of All Cotton: "Free" and Held by CCC, United States, August 1, 1923 to Date

August 1	Free stocks			CCC held stocks a/	Total
	at mill locations	other "free"	total		
	1,000 bales b/				
1920	1,358	2,205	3,563	---	3,563
1921	1,111	5,423	6,534	---	6,534
1922	1,218	1,614	2,832	---	2,832
1923	1,100	1,225	2,325	---	2,325
1924	722	834	1,556	---	1,556
1925	866	744	1,610	---	1,610
1926	1,097	2,446	3,543	---	3,543
1927	1,405	2,357	3,762	---	3,762
1928	1,012	1,524	2,536	---	2,536
1929	1,052	1,260	2,312	---	2,312
1930	1,183	3,347	4,530	---	4,530
1931	996	5,374	6,370	---	6,370
1932	1,218	8,460	9,678	---	9,678
1933	1,348	6,817	8,165	---	8,165
1934	1,228	3,479	4,707	3,037	7,744
1935	789	392	1,181	6,027	7,208
1936	897	1,275	2,172	3,237	5,409
1937	1,286	1,548	2,834	1,665	4,499
1938	1,262	3,307	4,569	6,964	11,533
1939	862	1,122	1,984	11,049	13,033
1940	972	859	1,831	8,733	10,564
1941	1,877	3,242	5,119	7,047	12,166
1942	2,252	1,731	3,983	6,657	10,640
1943	2,115	3,152	5,267	5,390	10,657
1944	1,874	2,213	4,087	6,657	10,744
1945	1,964	2,253	4,217	6,947	11,164
1946	2,282	4,258	6,540	786	7,326
1947	1,406	1,069	2,475	55	2,530
1948	1,472	1,567	3,039	41	3,080
1949	885	583	1,468	3,819	5,287
1950	1,307	1,999	3,306	3,540	6,846
1951	1,371	828	2,199	79	2,278
1952	1,035	1,469	2,504	285	2,789
1953	1,492	2,114	3,606	2,000	5,605
1954	1,218	1,475	2,693	7,035	9,728
1955	1,401	1,677	3,078	8,127	11,205
1956 c/	903	3,761	4,664	9,876	14,540

a/ Includes cotton pooled, owned and loans outstanding.

b/ Running bales.

c/ Preliminary.

Source: Agricultural Marketing Service, Statistics on Cotton and Related Data, 1920-1956 (Washington: Government Printing Office, 1957) U. S. Department of Agriculture Statistical Bul. No. 99, p. 39 and 106.

APPENDIX TABLE 3

Cotton Production, Quantity Placed Under Loan, Quantity Redeemed, and Net Quantity Under Loan, United States, and by States, Average for 1952-1956 Seasons

State	Production		Placed under loan		Redeemed		Net quantity under loan	
	actual	percent of total	actual	percent of total	actual	percent of total	actual	percent of total
	1,000 bales	percent	1,000 bales	percent	1,000 bales	percent	1,000 bales	percent
United States	14,584	100.0	4,707	100.0	1,132	100.0	3,575	100.0
Texas	3,903	26.8	1,620	34.4	228	20.1	1,392	38.9
Mississippi	1,831	12.6	693	14.7	235	20.8	458	12.8
Arkansas	1,461	10.0	426	9.1	95	8.4	331	9.3
California	1,554	10.7	350	7.4	255	22.5	95	2.7
Arizona	889	6.1	205	4.4	69	6.1	136	3.8
Alabama	880	6.0	230	4.9	49	4.3	181	5.1
Georgia	676	4.6	251	5.3	26	2.3	225	6.3
Louisiana	652	4.5	180	3.8	39	3.4	141	3.9
Tennessee	603	4.1	104	2.2	13	1.1	91	2.6
South Carolina	595	4.1	110	2.3	12	1.1	98	2.7
Missouri	432	3.0	120	2.6	19	1.7	101	2.8
North Carolina	429	2.9	87	1.8	11	1.0	76	2.1
Oklahoma	340	2.3	182	3.9	46	4.1	136	3.8
New Mexico	298	2.0	146	3.1	35	3.1	111	3.1
Other states	51	0.3	3	0.1	---	---	3	0.1

Source: Commodity Stabilization Service.